

RUG-III Version 5.20

The RUG-III Version 5.20 Grouper package includes the 53-group RUG-III model that will be used for billing Medicare Part A SNF PPS days of service starting January 1, 2006. This package provides general information, software, and technical documentation for RUG-III Version 5.20.

Technical Assistance. If you have questions which are not answered by the Version 5.20 Grouper package, please refer to the CMS web site

<http://www.cms.hhs.gov/medicaid/mds20/mdssoftw.asp>

or the QIES Technical Support Office (QTSO) web site for further information or for contact information to receive assistance.

<http://www.qtso.com/vendor.htm>

To get started with the grouper, please review the general documentation in the file “Grouper Doc.pdf” in the download package.

Version 5.20 of Grouper Package includes user information and source code for both a dynamic-link library (DLL) written in C++ and a SAS module. Version 5.20 implements the 2005 Refinement to the RUG-III model. This refinement adds a 53-group RUG-III model to the existing 34-group and 44-group models. The 53-group model consists of the 44-group model with 9 new groups added. The added groups identify high-cost residents who receive both rehabilitation therapy services and extensive care services.

Hierarchical vs. Index Maximizing Classification. Classification using any of the three models (34-group, 44-group, and 53-group) can be *hierarchical* or *index maximizing*. In hierarchical classification, the resident is assigned to the first group for which they qualify, given the standard hierarchical order of the RUG-III categories and groups (see Section 4.). In hierarchical classification, if the resident qualifies for the Extensive Services category (e.g. group SE1) and the Special Care category (e.g., group SSC), then classification will be Extensive Services, since the Extensive Services category is higher than (above) the Special Care category in the standard hierarchical order. In index maximizing classification, qualifications for all groups are examined. All qualified groups are determined, and then the resident is classified in the qualified group with the highest Case Mix Index (CMI). If the resident qualifies both for SE1 and SSC, but SSC has the higher CMI, then index maximizing classification will be in the SSC group even though it is lower in the hierarchy.

Special Medicare Rehabilitation Qualification. Qualification in the Rehabilitation groups is usually based solely on the level of rehabilitation therapy received. However, in some cases Medicare SNF classification also considers rehabilitation therapy orders. For SNF PPS 5-day and readmission/return assessments, the Medicare SNF payment system bases Rehabilitation qualification on both rehabilitation therapy received and rehabilitation therapy ordered. Version 5.20 continues to apply such special Rehabilitation qualification for Medicare SNF PPS 5-day and readmission/return assessments.

34-Group Model. The 34-group model includes only 4 Rehabilitation groups. For this model, the group precedence for hierarchical classification is the Extensive Services groups, the 4 Rehabilitation groups in the 34-group model, the Special Care groups, the Clinically Complex groups, the Cognitively Impaired groups, the Behavior Problems groups, and the Reduced Physical Functions groups. The 34-group model is in use in Medicaid payment systems in many states.

44-Group Model. The 44-group model includes 14 Rehabilitation groups. For this model, the group precedence for hierarchical classification is the 14 Rehabilitation groups in the 44-group and 53-group models, the Extensive Services groups, the Special Care groups, the Clinically Complex groups, the Cognitively Impaired groups, the Behavior Problems groups, and the Reduced Physical Functions groups. The 44-group model is in use in the Medicare SNF payment system through 12/31/2005 and is in use in Medicaid payment systems in several states.

53-Group Model. The 53-group model adds 9 new groups to the 44-group model for high-cost residents who qualify both for Rehabilitation and Extensive Services. These combined Rehabilitation/Extensive groups are placed at the top of the hierarchy. For this model, the group precedence for hierarchical classification is the 9 Rehabilitation/Extensive groups, the 14 Rehabilitation in the 44-group and 53-group models, the Extensive Services groups, the Special Care groups, the Clinically Complex groups, the Cognitively Impaired groups, the Behavior Problems groups, and the Reduced Physical Functions groups. The 53-group model will be used in Medicare SNF payment system beginning 01/01/2006.

Files Available with Version 5.20

[RUG520v2.ZIP](#) (1,378 KB) a compressed ZIP file containing 28 documents. The 28 components of this file are:

- General Information Files
 - **Grouper Doc.pdf**

This is the current document describing general features of the RUG-III Version 5.20 Grouper, including approach, RUG-III group definitions and order, input and output parameters, input data format, MDS items used, MDS record screening, standard Case Mix Index (CMI) sets, and standard test data sets.
 - **Cmi520.xls**

This is an Excel worksheet with the standard CMI sets in a format that will allow ease of coding.
- DLL Files
 - **DLL Doc.pdf**

User documentation for the DLL, including instructions for calling the DLL from both C++ and Visual Basic.
 - **RUG520.DLL**

The actual DLL (dynamic-link library) file for performing RUG-III Version 5.20 classification.
 - **RUG520.CPP**

The C++ module used to perform RUG-III calculations in the DLL.

- **RUG520.H**
The C++ header file used to define the DLL and used for static linking.
- **RUG520.LIB**
A file required if the user wants to use static linking.
- C++ Demo Program Files
 - **Demo520_CPP1.ZIP**
C++ Demo #1 source code and executable for calling the DLL and retrieving output results. Six files are included in the ZIP file. This code illustrates using static linking to a special library (RUG520.lib) for DLL access.
 - **Demo520_CPP2.ZIP**
C++ Demo #2 code for calling the DLL and retrieving output results. Six files are included in the ZIP file. This code illustrates using LoadLibrary() to access the DLL access.
- Visual Basic 6 Demo Program Files
 - **Demo520_VB6.ZIP**
VB6 Demo source code and executable for calling the DLL and retrieving output results. Four files are included in the ZIP file.
- Visual Basic .NET Demo Program Files
 - **Demo520_NET.ZIP**
VB .NET Demo source code and executable for calling the DLL and retrieving output results. Eight files are included in the ZIP file.
- SAS Files
 - **SAS Doc.pdf**
User documentation for the RUG-III Version 5.20 SAS code.
 - **RUG520.SAS**
The actual SAS module for performing RUG-III Version 5.20 classification.
 - **Call520.SAS**
Example SAS code for using the SAS classification module and retrieving the results.
 - **CMI*.SAS**
SAS code modules (C01_CMI.SAS, C02_CMI.SAS, C03_CMI.SAS, C04_CMI.SAS, D01_CMI.SAS, and D02_CMI.SAS) for the standard CMI sets for Version 5.20. Note these SAS modules can be converted to C++ code for C++ users.
 - **Read_MDS.SAS**
A SAS program to read MDS records in standard submission format and save to a SAS data set with MDS items named appropriately for the use with the SAS RUG-III classification module (RUG520.SAS).
- Test Data File Information
 - **Test520a_max Doc.pdf**

Documentation for the test data file named “Test520a_max.txt” below.

- **Test520a_max.txt**

This test data file has 1002 MDS assessment records in standard MDS submission format. These records have been fabricated to thoroughly test the RUG-III classification logic. This test data file has known values for both hierarchical and index maximizing classification for the 34-group, the 44-group, and the 53-group models.

- **Test520a_rural Doc.pdf**

Documentation for the test data file named “Test520a_rural.txt” below.

- **Test520a_rural.txt**

This test data file has 1002 MDS assessment records in standard MDS submission format. These records have been fabricated to thoroughly test the RUG-III classification logic. This test data file has known values for both hierarchical and index maximizing classification using SNF PPS rural CMI and the special Medicare Rehabilitation qualification for the 44-group and the 53-group models.

- **Test520b_urban Doc.pdf**

Documentation for the test data file named “Test520b_urban.txt” below.

- **Test520b_urban.txt**

This test data file has 1896 MDS assessment records in standard MDS submission format. The RUG-III items in these records are from MDS 2.0 assessments performed in a number of states during 1995. No resident, facility, or state identification is present in these records and the assessment dates have been changed to dates in 2004. This test data file has known values for both hierarchical and index maximizing classification using SNF PPS urban CMI and the special Medicare Rehabilitation qualification for the 44-group and the 53-group models.

- RUG44 to RUG53 Transition Information

- **RUG44 to RUG53 Transition Specs.pdf**

Documentation of the requirements for transitioning from RUG44 to RUG53 in MDS data systems.

Version 5.20 Approach and Features

In previous grouper versions, there were separate grouper modules for the available RUG-III models (34-group and 44-group). Version 5.20 of the RUG-III Grouper uses a single module to perform classifications with the 34-group model, the 44-group model, and the new 53-group model. When calling the module, the user specifies which model to use.

In previous grouper versions, the user was required to specify that classification use either hierarchical or index maximizing classification. If both types of classification were desired, then 2 separate calls to the grouper had to be made. Version 5.20 of the grouper always returns both hierarchical and index maximizing classification results. Both types of classification are obtained with a single call.

Version 5.20 continues to support special Medicare Rehabilitation qualification (ordered therapies are considered on SNF PPS 5-day and readmission/return assessments). If the user

requests special Medicare Rehabilitation qualification, then both hierarchical and index maximizing results will be returned using that special qualification.

The previous grouper version provided RUG-III classification code in dBase/Clipper for the 34-group and 44-group models, SAS code for the 44-group model only, and a DLL based on Visual Basic for the 44-group model only. Version 5.20 of the grouper provides a more complete array of products including:

- Working C++ classification code for all three models (34-group, 44-group, and 53-group).
- Working SAS classification code for all three models.
- A classification DLL based on C++ for all three models.

The new DLL has been developed in C++ to allow use with a wider range of platforms and has been tested with C++, Visual Basic 6, and Visual Basic .NET.